

WE CLAIM:

1. A method for the longitudinal application of at least one elongated retainer element onto an elongated bundle having a plurality of leads selected for electrical and optical transmission elements, said method comprising moving the bundle along a path, supplying a retainer element, forming a loop of the retainer element at successive, discrete locations of the bundle and cinching each loop to provide a retaining force on the bundle.

2. A method according to claim 1, wherein the step of forming a loop at successive, discrete locations comprises chaining the successive loops together.

3. A method according to claim 1, wherein the step of forming a loop at successive, discrete locations forms a loop by conducting a portion of the loop through a prior-formed loop.

4. A method according to claim 1, wherein the step of forming a loop forms successive loops and includes passing a second loop through a first formed loop adjacent the apex so that the loops cross at said apex.

5. A method according to claim 4, which includes continuously forming a loop out of the end of the preceding loop to form a new loop.

6. A method according to claim 1, wherein the step of forming the loops forms two respective loops back-coupled with the assistance of an additional linking loop.

7. A method according to claim 6, wherein an additional linking loop is oriented essentially reversed relative to the preceding loop.

8. A method according to claim 1, wherein the forming of the loop forms a respective loop which is wrapped around the

preceding loop in at least one location so that respectively two successive loops are coupled to one another .

9. A method according to claim 1, wherein the step of forming the loops includes forming a chain of loops by holding a newly-formed loop at its closed end and passing a new loop through said closed end to form the next following loop.

10. A method according to claim 1, wherein the step of forming a loop forms successive loops which are applied around the longitudinal extent of the bundle and coupled to one another essentially along an imaginary helical line.

11. A method according to claim 1, wherein the step of forming a loop forms successive loops coupled to one another in an essentially sawtoothed manner.

12. A method according to claim 1, wherein the step of forming a loop forms a loop having a substantially triangular or parabolic shape.

13. A method according to claim 1, wherein the step of forming the loop forms a loop which is drawn partially around the bundle as the bundle is being conveyed and then forms a next loop appended to the preceding loop offset in a circumferential direction of the bundle from the forming of the first loop.

14. A method according to claim 1, wherein the step of forming a loop forms successive loops and grasps the loop and pulls it around the bundle by a prescribed circumferential angle.

15. A method according to claim 1, wherein the step of forming a loop forms successive loops and includes pulling the loop together so that loop segments extend essentially parallel to one another .

16. A method according to claim 1, wherein the step of forming a loop forms successive loops along one side of the bundle at the same longitudinal location.

17. A method according to claim 1, wherein the step of forming a loop forms successive loops at a circumferential direction offset relative to the preceding loop.

18. A method according to claim 1, wherein the step of forming a loop forms, respectively, two successive loops which are linked together and are formed in alternate relationship to the longitudinal axis.

19. A method according to claim 1, wherein the step of forming a loop forms a first loop of a retainer element on one side of the bundle, conducting the retainer element through the first loop, cinching the first loop, grasping and forming a new second loop on the other side of the bundle by chaining the second loop to the first loop.

20. A method according to claim 1, which includes a step of supplying a retainer element by continuously hauling off the retaining element from a stationary supply reel.

21. A method according to claim 1, which includes supplying an additional retainer element, said step of forming a loop forms a first loop of the first retainer element, said second retainer element being passed through said loop of the first retainer element, pulling each of said retainer elements to cinch the loop in each retainer element and then forming another loop out of the first retainer element and passing the second retainer element therethrough.

22. A method according to claim 21, which includes providing a second retainer element by providing a second stationary supply reel and hauling the second retainer element therefrom.

23. A method according to claim 22, wherein a loop formed from the first retainer element is passed around the second supply reel to cause the movement of the second retainer element through the loop of the first retainer element.

24. A method according to claim 1, wherein the step of forming a loop forms the loops to be entrained on the moving bundle so that they are entrained in the longitudinal direction of movement of the bundle.

5 25. A method according to claim 24, which includes fastening a first-formed loop to the moving bundle and forming additional loops by looping the retainer element through the first-formed loop to form a second loop and then looping the retainer element through the second loop to form a third loop.

10 26. A method according to claim 1, wherein the step of forming a loop forms a new loop by passing it through a previously-formed loop with the two loops being transversely placed relative to one another.

15 27. A method according to claim 1, wherein the step of supplying a retainer element provides an element selected from a group consisting of threads, bands and twines.

20 28. A method of holding a transversely stranded product of a plurality of transmission elements selected from electrical and optical transmission elements together with at least one elongated retainer element, said method comprising moving the stranded product along the axis of the product, providing a plurality of retainer elements located circumferentially around the moving bundle, forming a loop out of the first of the retainer elements, passing a loop portion of the second retainer
25 element through the first loop to form a second loop chained to the first loop, drawing the second loop to a location of the next retainer element so that a loop portion of the next retainer element can be passed through to form the next following loop so that the loops of the retainer elements are
30 chained to one another and are entrained with the bundle to form a helical path of chained loops.

29. A method according to claim 28, wherein the loops are placed in chronological succession at their allocated circumferential position on the outside circumference of the stranded product.

5 30. A method according to claim 28, wherein the loops are chained to one another in a longitudinal direction and in a circumferential direction of the cable core.

31. A method according to claim 28, wherein the step of forming the loops forms a respective loop of each of the respective retaining elements on the outside circumference of the stranded product at a predictable longitudinal location, grasping this loop to hold it open until it is penetrated by the newly-formed loop of another retaining element, grasping the newly-formed loop of the other retaining element while the loop being held open is entrained in a throughput direction by the stranding product and is tightened so that the chaining of both loops is effected.

32. A method according to claim 28, wherein the stranded product is continuously hauled off in the throughput direction.

20 33. A method according to claim 28, wherein the chaining of successive loops is formed in a longitudinal direction of the stranded product.

34. A method according to claim 28, wherein after a penetration of two loops, the respective circumferential location is changed for the formation of the new loop chaining.

35. A method according to claim 28, wherein the loops are formed and intertwined with one another in a chronological succession on the outside circumference of the stranded product.

30 36. An apparatus for the longitudinal application of at least one elongated retainer element onto a moving bundle having a plurality of leads selected from electrical and optical transmission elements, said apparatus comprising at least one

loop-laying apparatus for forming a respective loop of a retainer element at successive discrete locations on the bundle, and means provided for pulling on said loop to cinch the loop onto the bundle to provide a retaining force.

5 37. An apparatus according to claim 36, wherein the loop-laying apparatus for forming a respective loop comprises at least one guide means for the retainer element.

10 38. An apparatus according to claim 37, wherein the guide means is arranged to rotate around an outside circumference of the bundle.

15 39. An apparatus according to claim 37, wherein the guide means is movable from a position along one side of the bundle for the formation of a first loop to the other side of the bundle to form the next following loop.

20 40. An apparatus according to claim 39, which includes at least one gripper element provided for pulling on each of the respectively formed loops.

25 41. An apparatus according to claim 40, wherein the guide means and gripper element are suspended movable relative to one another in a circumferential direction.

30 42. An apparatus according to claim 40, wherein the gripper element is provided to rotate continuously around the outside circumference of the bundle.

35 43. An apparatus according to claim 40, which includes means for moving the gripper element alternatively between one side and the other side of the bundle.

40 44. An apparatus according to claim 37, wherein the guide means can be moved back and forth transversely relative to the longitudinal axis of the bundle.

45 45. A communication cable having an elongated cable core with a plurality of leads selected from electrical and optical transmission elements being held together as a bundle by at

least one elongated retainer element, said retainer element having a form of a respective loop at successive discrete locations of the bundle, each of said loops being tightened to be cinched upon the bundle to provide a retaining force.

5 46. A communication cable according to claim 45, wherein the loops are formed by a plurality of retainer elements at different positions on the outside circumference of the stranded product and these loops are chained to one another .

10 47. A communication cable according to claim 45, wherein the loops of the retainer element are provided on the outside surface of the cable core at discrete locations that follow one another in a circumferential direction and in that the respective loops are tightened to cinch one another and to provide a retaining force.

15 48. A communication cable according to claim 47, wherein the loops are chained to one another in a longitudinal direction and in a circumferential direction to form a substantially helical path around the bundle.